

Appendix table 6-8.

Leading indicators of technological competitiveness: 1999

(Index)

Region or country/economy	National orientation	Socioeconomic infrastructure	Technological infrastructure	Productive capacity
South Korea	74.9	73.5	44.6	48.8
Taiwan	90.7	74.2	43.6	53.7
Malaysia	69.5	58.9	31.9	44.1
China	65.3	52.4	46.4	41.9
Philippines	60.9	63.7	24.4	42.6
Thailand	50.7	46.5	20.5	30.6
India	67.7	48.4	46.8	51.3
Indonesia	53.9	43.8	19.2	23.7
Mexico	41.8	40.4	21.8	24.8
Brazil	61.5	49.1	40.4	39.6
Argentina	41.3	53.3	27.5	31.0
Venezuela	39.8	49.4	21.3	24.3
Hungary	73.7	60.9	43.0	42.2
Poland	69.6	58.4	38.2	44.3
Czech Republic	68.2	58.9	41.5	44.6
Ireland	92.2	75.6	48.0	55.9
Israel	92.0	74.1	58.2	50.6

NOTES: For score and indicator calculations, raw data were transformed into scales of 0–100 for each indicator component and then averaged to generate comparable indicators with a 0–100 range. For survey items, 100 represents the highest response category for each question; for statistical data, 100 typically represents the value attained by the country with the largest value among the 30 countries included in the study. In the indicator formulations cited below, each term carries equal weight.

National orientation (NO) provides evidence that a nation is taking directed action to achieve technological competitiveness. These actions could take place in the business, government, or cultural sector or any combination of the three.

Indicator formulation: $NO = [Q1 + (Q2 + Q3)/2 + Q4 + F1V99]/4$.

Data used: Published data from the PRS Group, Political and Economic Forecast Table, "Political Risk Letter" for 1999 rating each country's investment risk (F1V99); and survey data assessing each country's national strategy to promote high-technology development (Q1), social influences favoring technological change (Q2 and Q3), and entrepreneurial spirit (Q4).

Socioeconomic infrastructure (SE) assesses the social and economic institutions that support and maintain the physical, human, organizational, and economic resources essential to the functioning of a modern, technology-based industrial nation.

Indicator formulation: $SE = (Q5 + Q10 + HMHS99)/3$.

Data used: Published data on the percentage of students enrolled in secondary and tertiary education (HMHS99) from the Harbison-Myers Skills Index for 1999, table 2.10, *1999 World Development Indicators*, World Bank, 1999; and survey data assessing each country's efforts to attract foreign investment (Q10) and the mobility of capital (Q5).

Technological infrastructure (TI) assesses the institutions and resources that contribute to a nation's capacity to develop, produce, and market new technology.

Indicator formulation: $TI = [(Q7 + Q8)/2 + Q9 + Q11 + EDP99 + S\&E96]/5$.

Data used: Published data from *Statistical Yearbook 1998*, UNESCO, 1998, on the number of scientists and engineers involved in research in 1996 (S&E 96), national purchases of electronic data processing equipment (EDP99) from Reed Electronics Research, *Yearbook of World Electronics Data 1999/2000*, Reed Business Information Ltd., England, 1999; and survey data assessing linkages of R&D to industry (Q9), output of indigenous academic science and engineering (Q7 and Q8), and the ability to make effective use of technological knowledge (Q11).

Productive capacity (PC) assesses the physical and human resources devoted to manufacturing products and the efficiency with which those resources are employed.

Indicator formulation: $PC = (Q6 + Q12 + Q13 + A2699)/4$.

Data used: Published data on electronics production (A2696) from Reed Electronics Research, *Yearbook of World Electronics Data 1999/2000*, Reed Business Information Ltd., England, 1999; and survey data assessing the supply and quality of skilled labor (Q6), capability of the indigenous management (Q13), and the existence of indigenous suppliers of components for technology-intensive products (Q12).

SOURCE: Alan L. Porter, J. David Roessner, Nils Newman, and Xiao-Yin Jin, *Indicators of Technology-Based Competitiveness of Nations, Summary Report*, report to the National Science Foundation under purchase order no. B04841X-00-0 (Atlanta: Georgia Institute of Technology, 2000).